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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/862,696	05/23/2001	Kimio Amemiya	107156-00068	2341

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EXAMINER

COLON, GERMAN

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 01/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/862,696

Applicant(s)

AMEMIYA ET AL.

Examiner

German Colón

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 3,6,13-15,19,21,27,32-39,41,44-47,49,51-60 and 63-71 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19,21,27,32-39,44-46,51,57,59,60,66,67 and 71 is/are allowed.
- 6) ☒ Claim(s) 3,6,13-15,41,49,52-56,58,63-65 and 68-70 is/are rejected.
- 7) ☒ Claim(s) 47 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. The Amendment, filed on October 20, 2003, has been entered and acknowledged by the Examiner.
2. Cancellation of claims 50, 61 and 62 has been entered.

### ***Claim Objections***

3. Claim 47 is objected to because of the following informalities:

Claim 47, identified as original, is dependent on claim 28. However, the originally filed claim was dependent on claim 46. For the purpose of examination, claim 47 is considered to be dependent on claim 46. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 58 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 58 recites the limitation "said layer *containing* the material" in line 17. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

***Examiner's Comments***

7. In regards to the rejection of independent claims 52-71 below, the Examiner notes that the references disclose a standard structure of a PDP comprising: a front substrate and a back substrate on opposite sides of a discharge space, a plurality of row electrode pairs extending in a row direction and arranged in a column direction on the front substrate to form display lines, a protective dielectric layer provided on a face of the front substrate facing the discharge space, a plurality of column electrodes extending in the column direction and arranged in the row direction on the back substrate to form a unit light emitting area in the discharge space at each intersection with the row electrode pair, and a phosphor layer on a face of the back substrate facing the discharge space.

8. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Noborio et al. (US 6,066,923) in view of Yamakawa (JP 09-263756).

Noborio discloses the claimed invention (see Examiner's Comments in view of Fig. 7 and Col. 1, lines 38-61) except for the limitation of "comprising a priming particle generating member made up of an UV light emissive phosphor".

However, in the same field of endeavor, Yamakawa discloses a phosphor for a PDP comprising a priming particle generating member made up on an UV light emissive phosphor with the purpose of providing a PDP with excellent luminous efficiency and high luminance. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the PDP of Noborio with the phosphor disclosed by Yamakawa in order to provide a PDP with excellent luminous efficiency and high luminance.

Noborio-Yamakawa discloses the UV light emissive phosphor extending in the row direction at each site opposite the row electrode pairs (see Fig. 7 of '923 in view of Yamakawa).

9. Claims 3, 6, 53 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nanto et al. (US 5,952,782) in view of Yamakawa (JP 09-263756).

Regarding claim 53, Nanto discloses the claimed invention (see Examiner's Comments in view of Fig. 1B and Col. 5, lines 38-60) except for the limitation of "comprising a priming particle generating member made up of an UV light emissive phosphor".

However, in the same field of endeavor, Yamakawa discloses a phosphor for a PDP, comprising a priming particle generating member made up on an UV light emissive phosphor with the purpose of providing a PDP with excellent luminous efficiency and high luminance. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the PDP of Nanto with the phosphor disclosed by Yamakawa in order to provide a PDP with excellent luminous efficiency and high luminance.

Nanto-Yamakawa discloses the UV light emissive phosphor extending in the column direction at each site opposite the row electrode pairs (see Fig. 1B of '782 in view of Yamakawa).

Regarding claim 69, Nanto discloses a PDP (see Examiner's Comments in view of Fig. 1B and Col. 5, lines 38-60) comprising a partition wall **29** disposed between the front substrate and the back substrate having a phosphor layer on a front face of the partition wall opposing the front substrate and facing the discharge.

Nanto-Yamakawa discloses a priming particle generating member, made up of an UV light emissive phosphor, being placed on a front face of the partition wall opposing the front substrate and facing the discharge, said UV light emissive phosphor having persistence characteristics allowing emission for 0.1 msec or more.

The Examiner notes that Yamakawa discloses the UV light emitting phosphors being  $\text{SrB}_4\text{O}_7:\text{Eu}$  or  $\text{BaSi}_2\text{O}_5:\text{Pb}$  (see Tables 1 and 2) which have the claimed persistence characteristics. Same reasons for combining stated in claim 53 apply.

Referring to claim 3, Nanto-Yamakawa discloses the UV light emissive phosphor having persistence characteristics allowing emission for 0.1 msec or more.

Referring to claim 6, Nanto-Yamakawa discloses a light absorption layer provided at each position opposing a non-lighting area (see Figs. 5, 7 and 8 of '782).

10. Claims 54, 55, 63, 64 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 6,008,582) in view of Yamakawa (JP 09-263756).

Regarding claim 54, Asano discloses a PDP (see Examiner's Comments in view of Fig. 1 and Col. 4, lines 10-41) comprising a partition wall disposed between the front substrate and the back substrate 3 including transverse walls 54 extending in the row direction and vertical walls 1 extending in the column direction. Asano is silent regarding the phosphor layer of said PDP.

However, in the same field of endeavor, Yamakawa discloses a phosphor for a PDP, comprising a priming particle generating member made up on an UV light emissive phosphor with the purpose of providing a PDP with excellent luminous efficiency and high luminance. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the PDP of Asano with the phosphor disclosed by Yamakawa in order to provide a PDP with excellent luminous efficiency and high luminance.

Asano-Yamakawa discloses a priming particle generating member made up on an UV light emissive phosphor provided between the front substrate and the transverse wall of the partition wall (see Figs. 1, 4 and 5 of '582 in view of Yamakawa).

Regarding claim 55 and 64, claim 55 and 64 are rejected over the reasons stated in the rejection of claim 54 above. Asano-Yamakawa discloses a priming particle generating member made up on an UV light emissive phosphor provided between the front substrate and the vertical wall of the partition wall (see Figs. 1, 4 and 5 of '582 in view of Yamakawa).

Regarding claim 63, claim 63 is rejected over the reasons stated in the rejection of claim 54 above. Asano-Yamakawa discloses a priming particle generating member made up on an UV light emissive phosphor provided between the front substrate and the transverse wall of the partition wall (see Figs. 1, 4 and 5 of '582 in view of Yamakawa).

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Regarding claim 65, claim 65 is rejected over the reasons stated in the rejection of claim 54. Asano-Yamakawa discloses a stripe patterned partition wall disposed between the front substrate and the back substrate extending in the column direction wherein said priming particle generating member is provided at a site opposing main bodies of row electrodes (see Figs. 1, 4 and 5 of '582 in view of Yamakawa).

11. Claim 56 is rejected under 35 U.S.C. 103(a) as being unpatentable over Amemiya et al. (US 5,742,122) in view of Yamakawa (JP 09-263756).

Amemiya discloses a PDP (see Examiner's Comments in view of Fig. 2 and Col. 4, lines 50-67 and Col. 5, lines 18-20) comprising a stripe patterned partition wall disposed between the front substrate and the back substrate and extending in the column direction, wherein a row electrode of each of the row electrode pair includes a main body **Sa** extending in the row direction and a protruding portion **S** protruding from the main body in the column direction. Amemiya is silent regarding the phosphor layer of said PDP.

However, in the same field of endeavor, Yamakawa discloses a phosphor for a PDP, comprising a priming particle generating member made up on an UV light emissive phosphor with the purpose of providing a PDP with excellent luminous efficiency and high luminance. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the PDP of Amemiya with the phosphor disclosed by Yamakawa in order to provide a PDP with excellent luminous efficiency and high luminance.



Amemiya-Yamakawa discloses a priming particle generating member made up on an UV light emissive phosphor provided between the front substrate and the back substrate in positions opposing the main bodies of the row electrodes.

12. Claims 13-15, 41, 49, 58, and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nanto et al. (US 5,952,782) in view of Van Slooten (US 6,229,582).

Regarding claim 58, Nanto discloses a PDP (see Examiner's Comments in view of Fig. 1B and Col. 5, lines 38-60) comprising a dielectric layer **24** overlaying column electrodes **A** between the back substrate and the phosphor layer **28**. Nanto fails to disclose a priming particle generating member provided at a site facing the discharge area.

However, in the same field of endeavor, Van Slooten discloses a PDP comprising a priming particle generating member with the purpose of reducing the number of electrons and ions of the plasma that are lost at the walls of the discharge area and lowering the sustain current needed to maintain the plasma, thus reducing the energy consumption of the device (see Col. 2, lines 1-12). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the priming particle generating member disclosed by Van Slooten in the PDP of Nanto, in order to reduce the number of electrons and ions of the plasma that are lost at the walls of the discharge area and lowering the sustain current needed to maintain the plasma, thus reducing the energy consumption of the device.

Nanto-Van Slooten discloses a priming particle generating member made up of a secondary electron emissive layer formed in combination with the dielectric layer (see Col. 1, lines 58-60 of '582).

Referring to claim 13, Nanto-Van Slooten discloses a partition wall **29** provided between the front substrate and the back substrate, wherein said secondary electron emissive layer is provided on a side wall-face of the partition wall (see Fig. 1 of '782 in view of Col. 1, lines 58-60 of '582).

Referring to claim 14, claim 14 is rejected over the reasons stated in the rejection of claim 13.

Referring to claim 15, Nanto-Van Slooten discloses said secondary electron emissive layer being placed between the back substrate and the phosphor layer (see Fig. 1 of '782 in view of Col. 1, lines 58-60 of '582).

Regarding claim 68, claim 68 is rejected over the reasons stated in the rejection of claim 58. Nanto-Van Slooten discloses said priming member provided in contact with the discharge space between adjacent unit light emitting areas and an additional portion provided at a portion of the dielectric layer (see Fig. 1 of '782 in view of Col. 1, lines 58-60 and Col. 5, lines 8-14 of '582).

Referring to claim 41, Nanto-Van Slooten discloses a light absorbing layer provided at a portion of the dielectric layer (see Figs. 5, 7 and 8 of '782).

Referring to claim 49, Nanto-Van Slooten discloses the priming particle generating member including a material having a work function of 4.2 eV or less (see Col. 2, lines 57-63 of '582).

13. Claim 70 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kurai (US 6,057,643) in view of Yamakawa (JP 09-263756).

Kurai discloses a PDP (see Examiner's Comments in view of Fig. 1 and Col. 2, lines 39-67) comprising a discharge gas including a mixed inert gas containing about 10% of a xenon gas (see Col. 5, line13). Kurai fails to disclose a priming particle generating member provided at a site facing the discharge area.

However, in the same field of endeavor, Yamakawa discloses a phosphor for a PDP comprising a priming particle generating member made up on an UV light emissive phosphor with the purpose of providing a PDP with excellent luminous efficiency and high luminance. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the PDP of Noborio with the phosphor disclosed by Yamakawa in order to provide a PDP with excellent luminous efficiency and high luminance.

***Allowable Subject Matter***

14. Claims 19, 21, 27, 32-39, 44-47, 51, 57, 59, 60, 66, 67 and 71 are allowed.

***Response to Arguments***

15. Applicant's arguments filed October 20, 2003 have been fully considered but they are not persuasive.

i. Applicant traverses the rejection of claim 58 under 35 U.S.C. 112, second paragraph, and argues that "the material" has sufficient antecedent basis.

The Examiner concedes that there is sufficient antecedent basis for "the material", however, the limitation lacking antecedent basis is "said dielectric layer containing the material".

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The claim recites the limitations of a dielectric layer (line 12) and a material having a coefficient of secondary electron emission higher than the dielectric (lines 15-16), however, there is no indication that the dielectric layer contains the material.

ii. Applicant argues that Noborio-Yamakawa fails to disclose a priming particle generating member formed separately from the phosphor layer (see Remarks, page 27, second paragraph).

The Examiner notes that the claims do not recite the limitation of the priming particle generating member being formed separately from the phosphor layer.

iii. Applicant argues that Nanto-Yamakawa fails to disclose a priming particle generating member facing each light-emitting area (see Remarks, page 30, lines 6-9 and 13-15).

The Examiner notes that Nanto-Yamakawa discloses a phosphor comprising a priming particle generating member, said phosphor facing each light-emitting area.

iv. Applicant argues that Nanto fails to teach a light absorption layer, but a light blocking layer.

The Examiner notes that Nanto discloses the light shielding (blocking) layer being made of a black pigment (see Col. 7, lines 11-16; and Col. 8, lines 10-14), such as iron oxide or cobalt oxide. Said black pigment is well known to be a light absorbing agent.

v. Applicant argues that Asano-Yamakawa, and Amemiya-Yamakawa fail to disclose a priming particle generating member facing each light-emitting area (see Remarks, page 35, lines 13-15).

The Examiner notes that Yamakawa discloses a phosphor comprising a priming particle generating member, said phosphor facing each light-emitting area.

vi. Applicant argues that neither Nanto nor Van Slooten disclose that the coefficient of secondary electron emission of the secondary electron emissive layer being higher than that of the protective dielectric layer.

The Examiner notes that Nanto discloses the protective dielectric layer being made of MgO (see Col. 5, line 66) and Van Slooten discloses the coefficient of secondary electron emission of the secondary electron emissive layer being higher than that of MgO (see Col. 2, lines 60-66).

vii. The Examiner notes that the indication of allowable subject matter to claims 9 and 16 (now independent claims 56 and 58) was withdrawn in the Office Action mailed June 18, 2003, rendering said action Non-Final.

viii. The amendment of claim 70 required new grounds of rejection.

For the reasons stated above, the rejection of claims 3, 6, 13-15, 41, 49, 52-56, 58, 63-65 and 68-70, is deemed proper.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

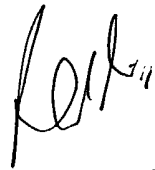
***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to German Colón whose telephone number is 571-272-2451. The examiner can normally be reached on Monday thru Thursday, from 8:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 703-305-4794. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

gc

  
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